INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY: APPLIED BUSINESS AND EDUCATION RESEARCH
2021, Vol. 2, No. 4, 337 – 348
http://dx.doi.org/10.11594/ijmaber.02.04.07

Research Article

Awareness, Attitude, Implementation and Academic Performance in Science Curriculum: A Correlational Study

Jick C. Balinario

Northern Negros State College of Science and Technology (NONESCOST)

Article history:
Submission April 2021
Revised April 2021
Accepted April 2021

**Corresponding author:*
E-mail: jickbalinario@gmail.com

ABSTRACT

The descriptive-correlational research examined the awareness, attitude, and implementation of science spiral curriculum concerning students' academic performance. Findings revealed that teachers are moderately aware, have a favorable attitude, and moderately implemented the science curriculum, including objectives, methodology, learning resources, and assessment were relatively implemented while facilities were less implemented. It was also determined that they have a satisfactory rating in a science subject regarding students' performance. The level of awareness, attitude, and implementation of the K to 12 science curriculum regarding sex, academic qualification, and teaching length had no significant difference. Finally, it revealed further that the level of awareness, attitude, and implementation of the spiral progression curriculum to students' academic performance has no significant relationship to the aforementioned variable. Thus, enhancement programs, skills training, and the procurement of science laboratory equipment are needed to enhance the educational process to meet the K to 12 science curriculum set standards.

Keywords: attitude, awareness, implementation, k to 12 science curriculum, spiral progression approach

Introduction

The Philippine educational system, particularly the Department of Education (DepEd), is overwhelmed with many concerns regarding the effectiveness and quality of education being delivered. The symptoms that the current learning system is problematic can be seen in our students' poor academic performance compared to their other Asian counterparts. To overcome the country's disparaging situation, the K-12 program was implemented, aiming to level up the teaching and learning process standards amongst Filipino learners. The science curriculum is not alien to this. Ferido (2013) emphasized that a science curriculum should be constructed ideally and perfectly based on the 21st century skills to develop Filipino students who are scientifically, technologically and environmentally responsive individuals. There are many theories about learning.

How to cite:
Balinario, J. C. (2021). Awareness, Attitude, Implementation and Academic Performance in Science Curriculum: A Correlational Study. *International Journal of Multidisciplinary: Applied Business and Education Research 2*(4): 337 – 348. doi: 10.11594/ijmaber.02.04.07

One of them is constructivism which espouses that the learner constructs or comes up with new ideas or realizations based on the existing knowledge. As the learner revisits what has been previously taken up, he/she gains mastery of the subject matter by creating connections out of the new idea and assimilating it with the previous idea.

Such is the core concept of the spiral curriculum that Bruner introduced in 1960. Bruner (1960) believed that subjects like science could be introduced at any time depending on the child's cognition. Bruner develops the idea of the "spiral curriculum," which he pointed out to be one of the tools that can enhance students' mastery of the concepts. This is achieved through repeated exposure to competencies ranging from the simplest to the most complex taught repeatedly through the years. Furthermore, Bruner also promotes education and training programs that encourage intuitive "grasping" of students (Tafrova-Grigorova et al., 2012). Bruner, J. S. (1960), theorized that cognition of human beings happened from these stages such as enactive meaning actual manipulation and interaction of objects, iconic, which means manipulation of representation of entities and phenomena and the symbolic, which means the use of representation on the actual entities and situation. Spiral progression is a prime mover of the K to 12 basic education curriculum. This approach believes that human cognition and understanding evolves in chronological learning progression relying on the interaction with the environment and students' experiences to deepen knowledge and skills. It espouses that learning is maximized when building on current knowledge.

The Philippine Basic Education system was is anchored to Republic Act No. 10533, which strengthens the curriculum implementation using spiral progression to foster mastery of the content knowledge and skills. Science education aims to mold scientifically literate learners who are well-informed and willing to make judgments and undertake courses of action that bear social, health, or environmental impact (Ferido, 2013). Specifically, the spiral progression approach, which Bruner started, is a concrete means to an end. His ideas opened the world to the realization that anyone has the capacity to learn even the most complicated lessons so long as they are properly organized and presented.

One of the Division of Negros Occidental envisioned being one of the centers of basic education in Region VI in the year 2025 to prepare students to be globally competitive in their respective fields of specialization. Likewise, the K to 12 program's implementation aims to provide quality, relevant education so that graduates can be easily employed in their respective fields of specialization. The curriculum was designed to produce graduates that raise Filipinos' professional standards in the local and global arena. To reach this goal, the selected division needs to tackle existing and future problems, and at the same time, continue to improve and cope up with the new the demands and challenges of the new curriculum.

Based on the Division's National Achievement Test (NAT) results in the secondary schools S.Y. 2014-2015, the MPS is 56.00, which is far below the National MPS Standard. The result indicates that the schools should implement immediate actions to improve the NAT MPS in the coming years. School administrators and teachers are not confident that they can increase the NAT MPS in the near future since many of the Spiral Progression Approach competencies are not aligned to the academe's existing expertise.

Even in the field, science teachers also doubt the effectiveness of the Spiral Progression Approach. The most common issue is that teachers have difficulties teaching using the discipline because some of the discussions are not in line with their field of specialization. There are also competencies not being tackled within the specified quarter because of time constraints, but the teachers don't have a choice. They prefer to proceed to the next quarter's next competencies since they are also time-bounded by the curriculum. Due to these existing concerns, mastery of learning competencies cannot be achieved.

Being a science teacher himself, the researcher has taken an interest in finding out more about the level of awareness, attitude, and curriculum implementations related to

students' academic performance in one division.

Purpose

The study aimed to determine the level of awareness, implementation, and attitude towards the spiral progression approach in one of the selected Division in Negros Occidental. Specifically, it sought answers to the following questions:

1. What is the level of awareness and attitude of the science teachers towards the science spiral progression approach when taken as a whole and grouped in terms of Sex; Academic qualification, and no. of years teaching science subjects?
2. What is the teacher's level of applying spiral progression in the science curriculum as a whole and objectives, methodology, facilities, learning resources, and assessment?
3. What is the level of students' academic performance in their Science subject?
4. Does the level of awareness, attitudes, and science curriculum implementation differ among science teachers' sex, academic qualification, and length of teaching science?
5. Is there a relationship among teachers' awareness, attitudes, and curriculum implementation in science and students' academic performance?

Statement of Hypotheses

In relation to the statement of the problems, here are the hypotheses that were formulated:

1. There is no difference in the level of awareness, attitudes and K to 12 science curriculum implementation among science teachers in terms of sex, academic qualification, and length of teaching science.
2. There is no relationship among teachers' awareness, attitudes, and curriculum implementation in science and students' academic performance**.**

Methodology

Design

This investigation used descriptive-correlational type of research since this investigation examines the level of awareness, attitude, and curriculum implementation in science among teachers in relation to their student's academic performance. According to Ardales (2008), this necessitates telling about the present scenario involving the said phenomenon by means of collecting pertinent data from a qualified pool of respondents. Descriptive research makes use of a survey questionnaire, observation, and interview to gather and verify data before making sound conclusions about the problem at hand.

Respondents of the Study

Science teachers currently deployed in the 18 schools of one of school division of Negros Occidental academic year 2016-2017 were asked to participate in this study. The sample size of the population was requested to answer the data-gathering instrument. Fifty Science teachers were surveyed. Their profile in terms of sex, age, civil status, academic qualifications, length of teaching experience, and length of teaching science is also presented. The table shows that 72% of science teachers are female, 54% older, and 68% married. Also, 52% of teachers have a baccalaureate academic qualification and 52% have a longer teaching experience, and 52% longer teaching experience in science. Furthermore, to measure the academic performance of the students, their grades in the first and second grading period in the school year 2016-2017 were accessed using their form 138, since they have experienced years of science instruction and have been the beneficiaries of the spiral progression approach.

Validity of the Instrument

Since the instrument is modified and not standardized, it has to go through validation. Two professors and two administrators, the Science supervisor and the Chief of Curriculum Division of Department of Education office of one division in Negros Occidental, were requested to conduct face and content validity using the criteria set by Good, Scates, and Calderon. Their rating was 4.07, interpreted as very satisfactory. The questionnaires were finalized with the help of their comments and suggestions.

Reliability of the Instrument

Upon getting the jury's approval who checked the validity of the instrument, it was also subjected to a reliability test. The respondents of the reliability test were the students of Graduate studies taking up Masters of Arts in Teaching major in General Science. The latter are also teachers from the different school divisions in Negros Occidental, wherein they were asked to go through the survey. Data were processed with the use of Cronbach Alpha.

Data Gathering Procedure

After establishing the survey questionnaire's validity and reliability, permission from the Division Superintendent of Sagay was sought to administer the science teachers' survey. After getting approval, the instrument was reproduced to be distributed to the respondents. After conducting the study, it was collected and scored. Then data were analyzed using SPSS and interpreted.

Statistical Treatment of Data

To answer problems 1 and 2, the level of awareness, attitude, and curriculum implementation in science among teachers when taken as a whole and in terms of Sex, Academic qualification, and Length of teaching science, the mean was used. For problem 3, on the level of students' academic performance in their Science subject, mean is also used. On problem 4, to answer the difference in the extent of awareness, attitudes, and K to 12 science curriculum implementation among Science teachers in terms of sex, academic qualification, and length of teaching science, independent t-test means was used. Lastly for problem no. 5, to answer the significant relationship among teachers' awareness, attitudes, and academic performance, Pearson product-moment correlation (Pearson's r) was used.

Result and Discussion

Table 1 presents the Level of Awareness towards k to 12 science curriculum using spiral progression approach. The science teachers as a whole have a mean score of 4.03, which means that they are generally moderately aware of the spiral progression approach. Even when they are grouped according to variables, all sub-groups have a moderately aware level, although mean scores are not the same. It appears that the female respondents (4.06) are moderately aware than their male counterparts (3.94). Moreover, teachers with graduate degrees or units in graduate school (4.06) have a slightly higher awareness score than those with only baccalaureate degrees (4.00). Finally, teachers who have taught longer, especially the science subject, were found to have a higher level of awareness (4.19) than those with shorter teaching in science subjects (3.85).

Table 1. Level of Awareness towards K to 12 Science Curriculum

Variables	n	$\bar{x}$	SD	Verbal Interpretation
As a whole	50	4.03	.62	Moderately aware
Sex				
Male	14	3.94	.44	Moderately aware
Female	16	4.06	.68	Moderately aware
Academic Qualification				
Baccalaureate	26	4.00	.57	Moderately aware
With MA units/MA/Ph.D. Units	24	4.06	.68	Moderately aware
Length of Teaching Science				
Shorter (below 6 yrs.)	24	3.85	.58	Moderately aware
Longer (6 years or more)	26	4.19	.62	Moderately aware

Legend: Verbal Interpretation: >4.20 – Extremely Aware; 3.40 – 4.19 – Moderately Aware; 2.60 – 3.39 – Somewhat aware; 1.80 – 2.59 – Slightly aware and <1.79 – Not all aware

Since K to 12 program is already a mandate, the data in table 1 supports the notion that teachers are moderately aware. It shows that all teachers can adopt and implement the program according to its rules and guidelines. Teachers' awareness is one of the important aspects in implementing new programs. Their self-efficacy beliefs produce their effects through cognitive, motivational, affective, and selective processes, Dalanon (2017). Respondents' preparation in terms of education attainment, seminars, and training attended can really help them better adopt the new educational system implemented by the Department of Education. Resurreccion, J. A and Adanza, J. (2015) according to them, in their study entitled "Responsibility and Role of Teachers," secondary science teachers should be given more time, seminars, and training because it is hard to implement without these."

Teachers must adapt to the new ways of teaching and strategies in implementing curriculum using spiral progression approach. Furthermore, according to Tiwari, P. S. N., & Singh, M. (2013), teachers could play an essential role in educating their students about environmental awareness, which is only possible when teachers themselves have the necessary level of environmental awareness. For this purpose, teachers should arm themselves with adequate knowledge, if possible more than what their students know, to effectively teach the concepts of science and related subjects.

Teachers are a significant factor in making students fall in love with learning science in class. They should be well-aware of how to teach science using the spiral progression curriculum effectively. They should also be open and ready to embrace the ever-changing landscape of teaching and learning. This is so because learners also evolve as influenced by their environment and the sophistication of technology that surrounds them.

Furthermore, they should fully immerse themselves in the latest trends and innovations to faithfully implement the same in the class. Teacher's professional development is one of the considerations to be given priority so that science teachers could implement the curriculum on what is expected for them to implement. The conduct of training and seminars that they have attended and continuing education helps them improve their teaching science. So the administrative and government must support and prioritize the professional and developmental growth of teachers so that the implementation of the program will be successful.

Table 2. Level of Attitude towards k to 12 Science Curriculum

Variable	n	$\bar{x}$	SD	Verbal Interpretation
As a whole	50	3.96	.62	Favorable
Sex				
Male	14	3.91	.51	Favorable
Female	36	3.99	.65	Favorable
Academic Qualification				
Baccalaureate	26	3.95	.61	Favorable
With MA units/MA/Ph.D. Units	24	3.98	.63	Favorable
Length of Teaching Science				
Shorter (below 6 yrs.)	24	3.86	.60	Favorable
Longer (6 years or more)	26	4.06	.62	Favorable

Legend: Verbal Interpretation: >4.20 – Very favorable; 3.40 – 4.19 – favorable; 2.60 – 3.39 – Somewhat favorable; 1.80 – 2.59 – Slightly favorable and <1.79 – unfavorable

As shown in table 2, the level of attitude towards K to 12 Science Curriculum using the spiral progression approach shows that the Science teachers are generally favorable towards the spiral progression approach as manifested by the mean of means, 3.96. When taken

according to sex, the female teachers have a higher level of attitude (3.99) towards the spiral progression approach than the male teachers (3.91). Furthermore, according to academic qualifications, the baccalaureate degree-holders teachers have an almost similar attitude (3.95) towards the said approach as those with graduate degrees or even just units (3.98). Lastly, when grouped according to the length of years of teaching science, those who have a favorable attitude are those who are in the field longer (6 years or more) with 4.06 compared to the 3.86 for those who have been teaching for a shorter number (below 6) of years.

Teachers and students' attitudes must be studied whenever a new system of education is to be introduced. Their willingness to implement and embrace the new system, after all, will determine the success of its implementation.

It is interesting to note then that the science teachers' general attitude is favorable with implementing the curriculum. But many also say that the approach is not relevant and they do not have mastery of the competencies needed to pull it off. The most common concern among teachers is that with the new approach comes a plethora of competencies beyond their existing expertise. They have been so comfortable teaching their specialization for many years that they find it difficult to do advanced reading and prepare to teach something they don't know much about. However, because of positive attitude, they also believe that they can produce competent and holistic learners through this new educational system.

Henson (2001) suggested that teachers' inner belief, behaviors, and their impact on their students have potent effects and critical roles in student learning success. Jolly et al., (2004), also suggested that students will not learn if teachers do not fully grasp the learning content they teach. Likewise, science teachers' efficacy towards teaching positively influences science as a field and their choice of teaching science as a field of specialization (Ramey-Gassert et al., 1996). Aikenhead (2006) proves that despite the new curriculum innovation and reforms, most teachers still keep their classical perspective about science curriculum influenced by their perspective to traditional science teaching approach. It only explains that teachers still do not like change due to different challenges that will come along with its implementation. Still, with the right and favorable attitude in implementing the science curriculum, it will make things easy as possible.

Table 4 presents the level of Implementation of science teachers towards K to 12 science curriculum using spiral progression approach as a whole and in terms of objectives, methodology, facilities, learning resources, and assessment. Table 3 presents that those teachers teaching science subjects can implement the spiral progression approach as a whole is moderately implemented, having a mean score of 3.83. As to objectives (4.06), methodology (4.11), learning resources (3.80), and assessment (3.93), they implemented moderately. Only in the area of facilities is somewhat implemented with a mean score of 3.28. It further reveals that methodology is their strongest area. When the scores are classified according to variables, it appears that the female teachers' level of moderately implemented, which is slightly higher than the male teachers in all aspects, except in the area of assessment. The same trend can be seen when the teacher is classified as academic qualifications. Those with higher qualifications think the implementation of all areas is slightly higher than what those with baccalaureate degree think. Finally, when the teachers are segregated as to the length of service teaching science, those with longer experience have a much higher implementation level than those with a shorter teaching experience span.

The fact that facilities is the lowest-scoring area is affirmed by a number of the respondents, who commented that they had experienced inadequacy of equipment and tools in carrying out certain science activities and lack of reading materials and resources, which affected the delivery of instruction. Another study conducted by Akar, E. Ö. (2014), when there are curriculum changes and teacher development, the biggest concern is lack of alignment on the availability of resources on the intended curriculum. The Department of Education should invest more in facilities and resources since this one factor could be

considered as a problem in the full implementation of the said program. Since there is a high level of implementation as a whole, the result further shows that Department Education seminars, training, orientations conducted to the new curriculum are an effective way to fully implement the said program at the classroom level.

Table 3. Level of Implementation towards K to 12 Science Curriculum

Variables	As a whole		Objective		Methodology		Facilities		Learning Resources		Assessment	
	$\bar{x}$	VI	$\bar{x}$	VI	$\bar{x}$	VI	$\bar{x}$	VI	$\bar{x}$	VI	$\bar{x}$	VI
As a whole	3.83	*MI*	4.06	*MI*	4.11	*MI*	3.28	*SI*	3.80	*MI*	3.93	*MI*
Sex												
Male	3.70	*MI*	4.08	*MI*	4.01	*MI*	2.88	*SI*	3.63	*MI*	3.98	*MI*
Female	3.88	*MI*	4.06	*MI*	4.14	*MI*	3.44	*SI*	3.86	*MI*	3.92	*MI*
Acad. Qualification												
Baccalaureate	3.81	*MI*	4.04	*MI*	4.09	*MI*	3.21	*SI*	3.74	*MI*	3.93	*MI*
With MA units	3.86	*MI*	4.10	*MI*	4.13	*MI*	3.37	*SI*	3.85	*MI*	3.94	*MI*
MA/PhD Units												
Length of Teaching Science												
Shorter (below 6 years)	3.69	*MI*	3.94	*MI*	4.01	*MI*	3.04	*SI*	3.66	*MI*	3.79	*MI*
Longer (6 years or more)	3.96	*MI*	4.19	*MI*	4.20	*MI*	3.51	*MI*	3.92	*MI*	4.06	*MI*

Legend: Verbal Interpretation (VI): >4.20 – Extremely Implemented (EI); 3.40 – 4.19 – Moderately Implemented (MI); 2.60 – 3.39 – Somewhat implemented (SI); 1.80 – 2.59 – Slightly Implemented (SI) and <1.79 – Not all implemented (NI)

Table 4. Level of Students' Academic Performance

Variable	$\bar{x}$	SD	Verbal Interpretation
Level of Academic Achievement	83.62	2.75	Satisfactory

Legend: DepEd Order no. 8, Series of 2015

It can be noted that in table 4, the students' academic achievement in science has a mean of 83.62, interpreted as satisfactory. The result was supported by Adams and Sargent (2012), who made a study concerning the students' perceptions of the change of curriculum in China. The Chinese government transformed its curriculum from subject–centered to student-centered, similar to the spiral progression approach. In the implementation of this new curriculum in China, it was noted that it significantly decreased student's stress levels, which increased student participation in class. Therefore, it was assumed that the new curriculum is a better way of learning due to the noted positive developments amongst students.

This only affirms that students' academic achievement can dramatically increase when they are less stressed and more motivated to invest in class because of the adoption of a more student-friendly approach. Teachers' experiences in using different strategies and activities in teaching also impacted the K to 12 program implementation. Students have better-enhanced skills because they tend to be

more participative and engaged in different activities. Likewise, teachers are also encouraged to become more of a facilitator than an instructor, where she introduces activities aided with technologies that help make teaching-learning more creative and interesting (Cabansag, 2014).

Reeves (2003) also confirmed that in the spiral progression approach, assessment is a tool used to examine students' development in achieving higher performance on the set academic standards in contrast to the traditional paper-pencil tests. In this approach, they must show what they got and how they can perform or exhibit based on what they have learned. Moreover, Akessa, A. M. and Dhufera, A. G. (2015), showed that teacher's average responses contribute to a good aspect where they are highly motivated most of the time because they cover up their syllabuses on the given time and this contribute to the enhancement of students' competence and thereby improve students' academic performance.

The result was supported by Adams and Sargent (2012) made a study concerning the student perceptions in China about its curriculum change like the spiral progression approach. It was indicated that the new change in the curriculum reduces stress levels among students and increases the students' participation in class. In the result shown, satisfactory student performance could also prove that students learned better due to the shift of their perceptions towards curriculum change and innovation.

Table 5. Difference on the Level of Teachers' Awareness

Variables	$\bar{x}$	t-value	p-value	Verbal Interpretation
Sex				
Male	3.94			
Female	4.06	-.586	.560	Not Significant
Academic Qualification				
Baccalaureate	4.00			
With MA units/MA/PhD Units	4.06	-.328	.745	Not Significant
Length of Teaching Science				
Shorter (below 6 yrs.)	3.85			
Longer (6 years or more)	4.19	-1.956	.056	Not Significant

Table 5 presents the level of awareness among science teachers in terms of sex, academic qualification, and lengths of teaching science have no significant difference. This implies that no matter what their profile may be science teachers are equally able to implement the approach. The result was supported by Patenaude, S. (2011), the teacher as respondents of the study inform that the words come out had an impact on their students' performance.

It is further supported by Sanders, M. S., Haselden, K., & Moss, R. M. (2014). According to them, teacher education programs will focus on teaching understanding towards diversity of pre-service teachers. Teacher candidates must have self-awareness and know how to reflect the situation and understand the diversity of 21st-century students, that they must be held accountable in the future. Furthermore, teacher success lies in his/her experiences from diverse schools. Most of the teacher education programs must focus on providing learning opportunities from mono-cultural to multi-cultural classroom settings (Smolen et al., 2006). It was emphasized that internal reflection and self-awareness is a crucial stage in the developmental processes.

Table 6 shows the attitude level among teachers teaching science regarding sex, academic qualification, and length of teaching science have no significant difference. This implies that the Science teachers' attitude towards the approach is not affected by their

personal status. McLean, V. M. (2010), when teachers demonstrate passion and love for what they are teaching, they can convince students to do their best and learn more to achieve set standards. Therefore, if teachers are exposed to professional development opportunities, they display a more positive attitude toward differentiated instruction once the latter is presented.

Table 6. Difference on the Level of Teachers' Attitude

Variables	$\bar{x}$	t-value	p-value	Verbal Interpretation
Sex				
Male	3.91			
Female	3.99	-.411	.683	Not Significant
Academic Qualification				
Baccalaureate	3.95			
With MA units/MA/PhD Units	3.98	-.188	.852	Not Significant
Length of Teaching Science				
Shorter (below 6 yrs.)	3.86			
Longer (6 years or more)	4.06	-1.196	.238	Not Significant

*significant at α = .05

Table 7 shows implementation level among teachers teaching science with regards to sex, academic qualification, and length of teaching science has no significant difference. This implies that it does not matter who they are. They are all equally able and capable of implementing the approach if they want. The result was supported by Estacio, M (2015), the K to 12 Basic Education Curriculum is a national standard and competency based aligned to learners needs and community anchored to the study and researches conducted from other countries and the experienced of local failures and successes in the educational system. Technology gives the teachers the ability to have access to all learning materials easy, fast and reliable. There is no reason for teachers to not implement the said curriculum approach since the learning materials are provided and very accessible to all. Furthermore, a study conducted by Crisol, L. G. and Alamillo, J. B. (2014) tells us that the K to 12 program was implemented to create educational reforms that encourage students to be positive and being optimistic, that they will achieve successfully the set goals and objectives. Therefore students are willing to make an effort and spend their time and resources just to undergo the new educational reform.

Table 7. Difference on the Level of Teachers' Implementation

Variables	$\bar{x}$	t-value	p-value	Verbal Interpretation
Sex				
Male	3.70			
Female	3.88	-1.058	.295	Not Significant
Academic Qualification				
Baccalaureate	3.81			
With MA units/MA/PhD Units	3.86	-.334	.740	Not Significant
Length of Teaching Science				
Shorter (below 6 yrs.)	3.69			
Longer (6 years or more)	3.96	-1.818	.075	Not Significant

*significant at α =.05

Table 8. Relationship among Phenomena

Variables	r	p-value	Verbal Interpretation
Awareness vs. Academic Performance	-0.009	0.953	Not Significant
Attitude vs. Academic Performance	0.85	0.558	Not Significant
Implementation vs. Academic Performance	0.012	0.934	Not Significant

*significant at $\alpha = .05$

Table 8 presents that the levels of teachers' awareness, attitudes, and implementation of science curriculum to the students' academic performance has no significant relationship to one another. It indicates teachers' awareness on what the approach is and how to use it in class cannot positively affect student learning. Duze (2012), affirmed curriculum effectiveness relies on the knowledge of teachers on the implementation of curriculum in terms of choosing pedagogy in teaching and mastery of subject matter and content. It is common knowledge that a person cannot give what he does not have. It follows, that teachers should be fully aware of the approach if they expect it to spell positive changes for their learners. When the extent of Science teachers' attitude towards the approach is tested against the students' academic performance, the resulting p-value is .558 greater than 0.05 level of significance showed that the relationship between the two variables is not significant. The null hypothesis is not rejected. This was interpreted the level of attitude among teachers and students academic performance have no relationship to one another. The researchers recommended that integrated Science teachers should incorporate constructivist-based teaching strategy in their methods of teaching, and they can only do so if they have very favorable attitude towards the approach they are using, such as the spiral progression (Narmadha et al, 2013).

However, Montebon (2014), on his study about student perceptions on spiral progression approach, findings shows students view on the new curriculum as helpful to them in a general sense. With such positive perception, science curriculum using spiral progression is believed to be a dynamic curriculum where teachers are challenged to continue to judiciously implement the program to ensure its success in meeting its goals and objectives. Helping one another, with the stakeholders, teachers and administrators, the new curriculum successful implementation will help our nation become more progressive.

Conclusion

Based on the findings, the following conclusions are hereby made:

1. Science teachers' level of awareness is moderate and have favorable attitude in the implementation of science curriculum.
2. Science curriculum K to 12 implementation in terms of terms of objectives, methodology, learning resources and assessment were moderately implemented and facilities was somewhat implemented.
3. There is a satisfactory rating in the academic performance of students in science subject.
4. The level of awareness, attitude, and implementation of science curriculum using spiral progression approach when grouped according to sex, academic qualification and length of teaching science have no significant difference.
5. There is no significant relationship was noted on Science teachers' level of awareness, attitude, and implementation of K to 12 science curriculum towards the academic performance of students.

Recommendations

Based on the conclusions, here are the following recommendations:

1. Students are given re-orientation about the spiral progression approach for them to be aware and have a good attitude in the learning process.
2. Continuous education, training, and workshop are conducted for all Science teachers to update and equip them to the new trends and challenges in the 21st Century teaching-learning process.
3. Government and non-government organizations may be tapped for funding and procurement of necessary laboratory apparatuses, equipment, tools, and materials intended for teaching science.
4. Science teachers must be motivated and encouraged to embrace the said approach to produce scientifically and globally competitive 21st Century learners.
5. Enhancement programs are in place to reinforce the science curriculum using the spiral progression approach and maximize the opportunity to influence students' academic performance so that the curriculum will be successfully implemented.

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